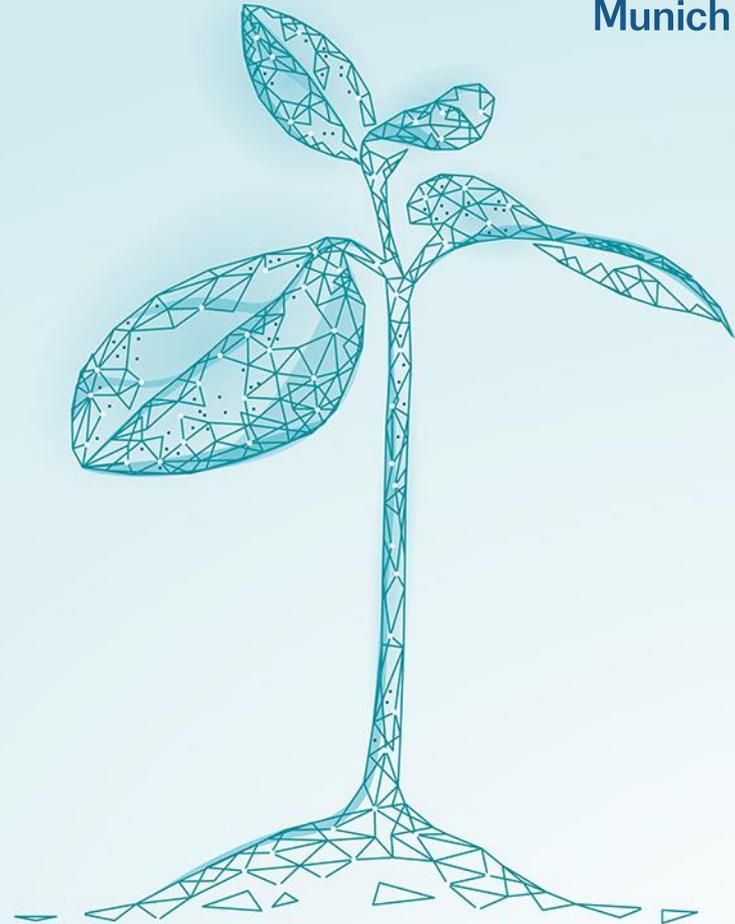


INVESTOR CALL ON
**Corporate responsibility
in business at Munich Re**

7 October 2019

Renate Bleich – Head of Sustainability
Ernst Rauch – Chief Climate and Geo Scientist
Michael Lardschneider – Group Security Risk Officer



Systematically integrating sustainability criteria when creating value – Key achievements in 2018



Enabling new technologies for a low-carbon economy

- Innovative insurance solutions for new technologies, e.g. battery storage
- €1.6bn invested in renewable energies, €0.9bn in green bonds, 800,000 t avoided CO₂ emissions

Driving industry standards for climate risk management via UNEP FI PSI¹ Working Group on TCFD² recommendations



Sustainability criteria deeply entrenched in our underwriting and investment decisions

- New investment process established to fully integrate ESG criteria for all asset classes
- Coal sector – divestment (30% revenue threshold) and strict underwriting exclusions for new coal projects



New remuneration system for the Board of Management, aligned with long-term shareholders' interests

Responsible employer

- Establishment of Munich Re Digital School to enhance digital qualifications of employees
- Voluntary programme to support reduced complexity and digital transformation

Top positions in major external ratings:
MSCI AA rating, top 10 in DJSI, #1 Union Investment for governance

Reconnecting Corporate Responsibility (CR) activities with the business creates shared value – for the company and society

The concept of shared value ...

- Shared value creation focuses on connecting societal and economic progress
- Responsible behaviour increasingly relevant for competitive advantage – companies need to do good and do it well



... how we live it at Munich Re

- Corporate Responsibility in Business
- Environmental management
- Social impact projects

Sustainable Development Goals Implementation at Munich Re

Through our risk expertise, our sustainable solutions and our actions as a responsible employer, we are contributing in particular to the achievement of the following seven UN Sustainable Development Goals (SDGs).

Selected examples:

- Public-sector risk transfer solutions (e.g. CCRIF, ARC, PEF, MCII)¹
- Crop failure insurance
- Inclusive insurance products
- Renewable energy and energy efficiency solutions
- Investment in renewable energies and infrastructure
- InsuResilience initiative



¹ Please refer to slide [16](#), [33](#) and [36](#) for further information.

We have implemented an ESG framework for insurance and investment activities

ESG aspects, sensitive issues, Munich Re position and measures



ENVIRONMENT

- Pollution
- Natural resources and biodiversity
- GHG emissions



SOCIAL

- Political context and public awareness
- Labour and working conditions
- Human rights
- Health, safety and security for the community
- Displacement of people
- Cultural heritage



GOVERNANCE

- Responsible and correct planning and evaluation
- Compliance
- Consultation and transparency



Banned weapons:

Policy on cluster munition and land mines



Coal:

Policy on coal business underwriting and investments



Arctic drilling:

Guidelines, risks to be referred to Arctic Drilling Panel



Oil sand:

Position paper including specific questions on ESG aspects



Fracking:

Position paper including specific questions on ESG aspects



Mining:

Position paper including specific questions on ESG aspects



Investments in farmland:

Mandatory ESG check for investments

ESG Tool for Underwriting

Assessment of different industries, best practice in credit/surety

Sustainable investment process

ESG research and ratings included in investment process

ESG country rating

ESG information included in Munich Re Country Risk Assessment

Continuous evaluation and refinement of framework and processes, taking regulatory developments and industry-wide standards into consideration

Reputational risk committees (RRC) for escalation of controversial underwriting and investment cases



MISSION

- Consultation of business segments
- Analysis and assessment of individual cases



EXAMPLES OF REQUESTS

- Investment in / (re)insurance of specific entities / Groups
- (Re)insurance of potentially polluting projects
- (Re)insurance of projects in specific countries
- Insurance of clinical trial participants
- Critical products



WORKING MODE

- Reporting of critical issues prior to closing of a deal
- RRC responds within 48 hours, giving clear guidance
- Escalation to Board of Management by RRC coordinator in case of non-compliance

Declined
14%

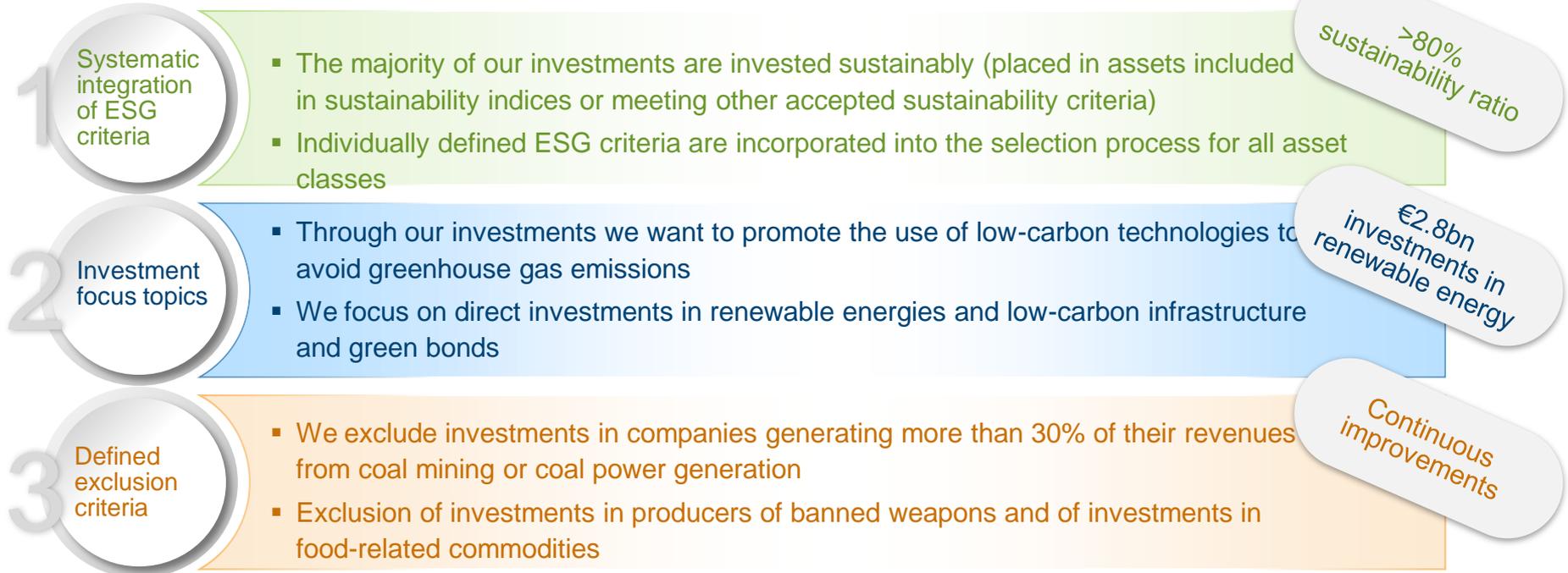
Approved
with conditions
14%



Approved
72%

Reputational risks are monitored and steered within RRCs

Munich Re's responsible investment strategy is based on three pillars



Binding public group-wide Responsible Investment Guideline (RIG) covers all requirements regarding PRI and ESG that concern Munich Re (Group) asset management

Munich Re investments: Key achievements

1 Sustainability ratio for all forms of investment was >80% in 2018



2 Munich Re invested capital in renewable energies €1.6bn and green bonds €1.2bn (as of 30.06.2019)

3 Divestments from coal ~ €145m

Shares, corporate bonds

- Systematic analysis of ESG criteria in addition to financial performance
- New investment process

Government bonds

- Use of country ratings based on ESG information
- Exclusion of countries not meeting requirements

Real estate

- During due diligence, ESG criteria taken into account, e.g. construction material, technical facilities, energy efficiency

Infrastructure and renewable energies

- During due diligence, ESG criteria and political parameters taken into account

Agriculture and forestry

- During due diligence, ESG criteria taken into account

Munich Re's activities relating to climate change focus on the following fields of activity

CLIMATE STRATEGY MUNICH RE (GROUP)

RISK EVALUATION

Recording and evaluation of the impact of climate change on the frequency and intensity of natural hazards.

RISK-TRANSFER SOLUTIONS

Realisation of business growth areas as a leading provider of risk-transfer solutions for renewable energies and other products aimed at adapting to and mitigating climate change.

ASSET MANAGEMENT

Supporting the expansion of renewable energies and infrastructure projects by pursuing a sustainable investment strategy.

Carbon neutrality of Munich Re

Munich: since 2009, Reinsurance worldwide: since 2012, Munich Re (Group): since end 2015

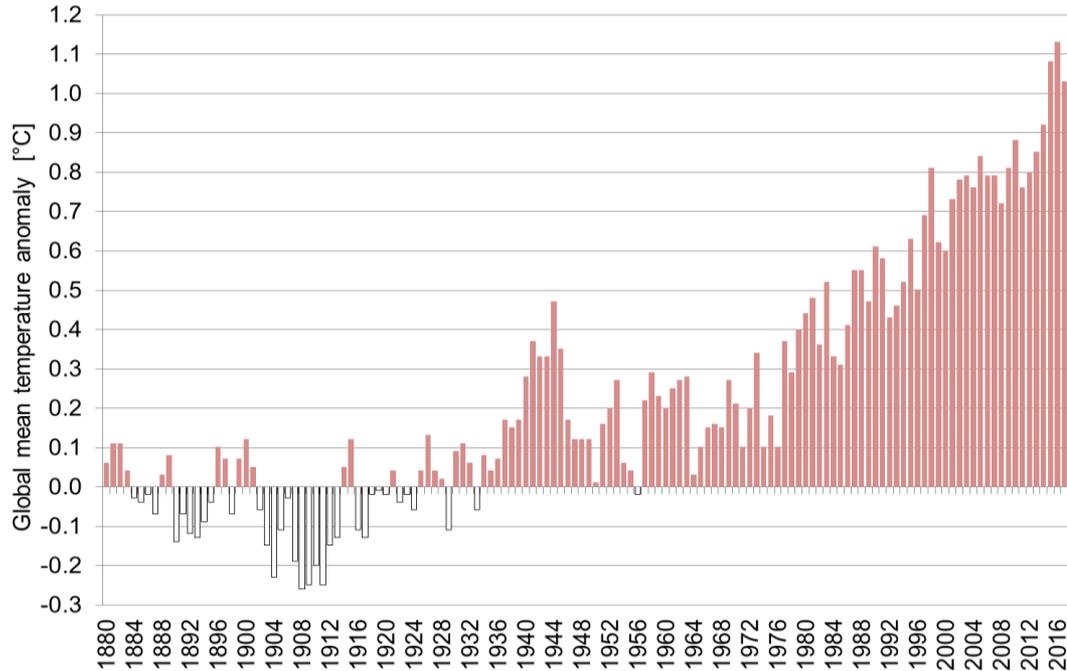
Involvement in climate initiatives

e.g. Munich Climate Insurance Initiative (MCII), InsuResilience

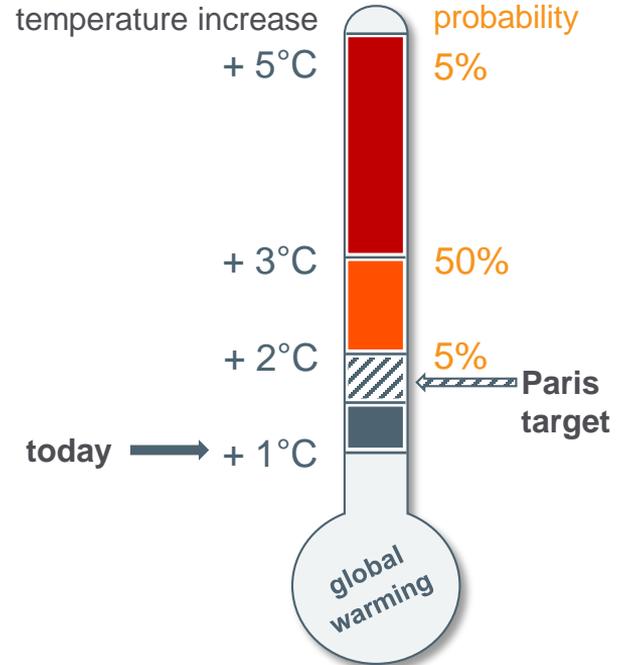
Climate change today: physical impacts

Increasing temperatures → increasing higher weather hazards (examples)

approx. 1°C warming since 1900



Based on Paris Agreement commitments:
50% probability of warming >2°C

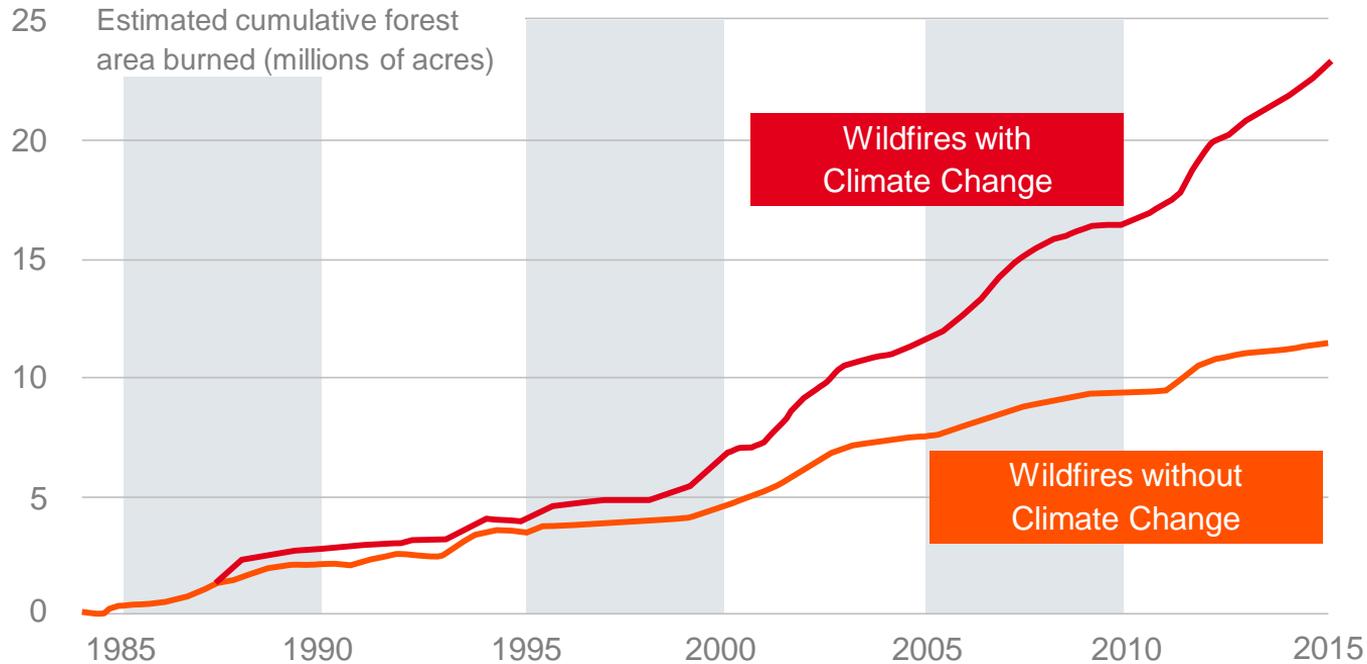


Climate change today: physical impacts

Increase in burned areas from wildfires



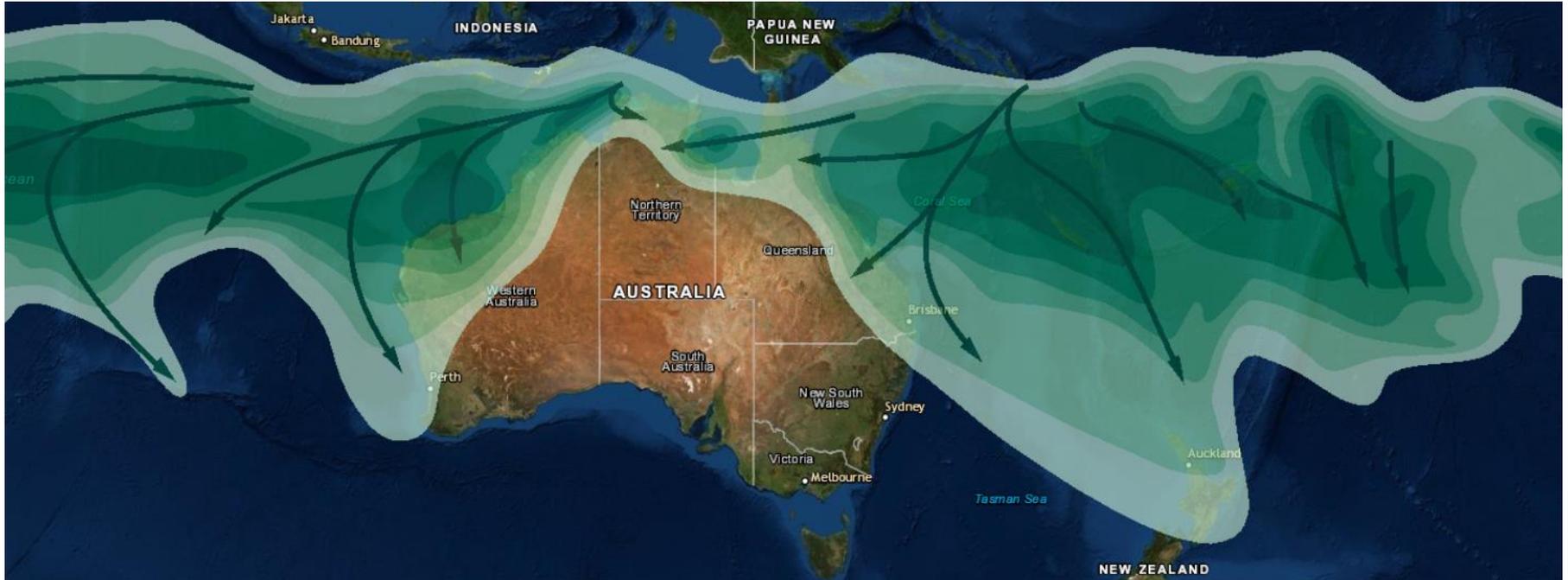
Wildfire extent: area burned in the western US since 1984



Climate change today: physical impacts

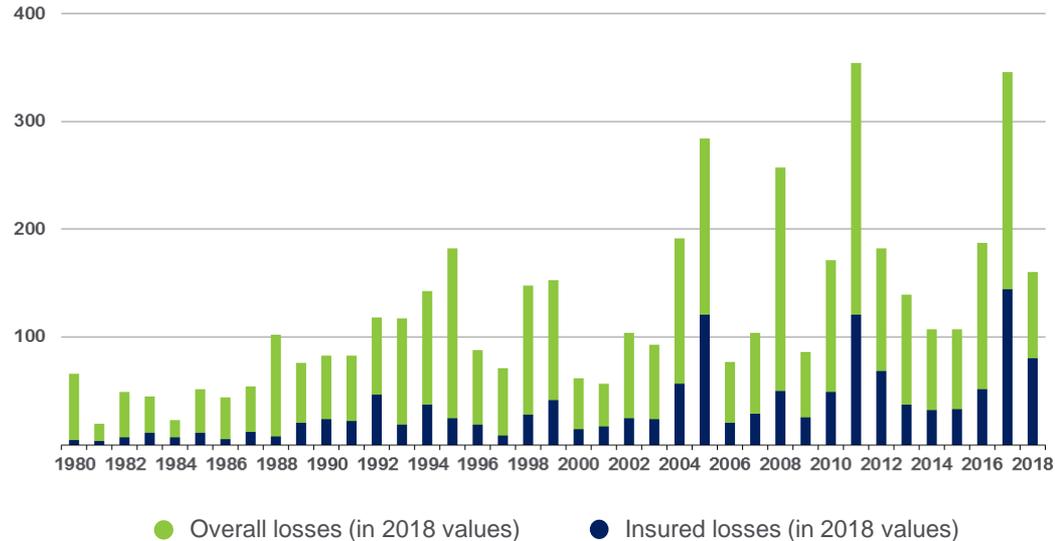
stronger cyclones and new regions (e.g. south of Brisbane)

 Extreme weather events: future areas affected by tropical cyclones in Australia

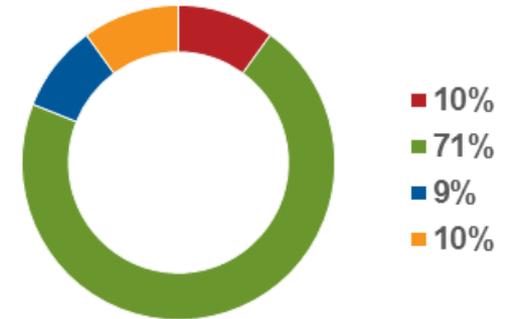


Climate change today: insurance risk of change upward loss trend from natural catastrophes

Overall and insured nat cat losses worldwide since 1980 (US\$ bn)



90% of insured nat cat losses from weather-related events



- 10% Geophysical events
- 71% Meteorological events
- 9% Hydrological events
- 10% Climatological events

Inflation adjusted via country-specific consumer price index and consideration of exchange rate fluctuations between local currency and US\$.

Climate change future impacts until the end of this century (3°-5°C temperature increase)

Physical impacts

sea level rise (m)



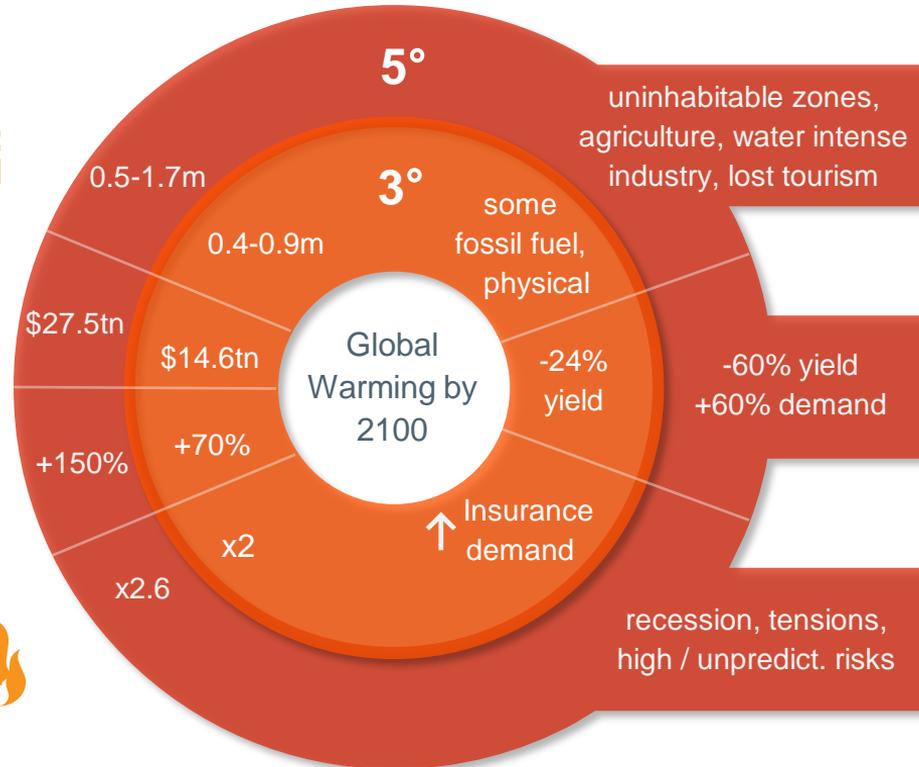
coastal assets to defend (\$tn)



frequency of extreme rainfall



increase in wildfire extent



Economic impacts



stranded assets



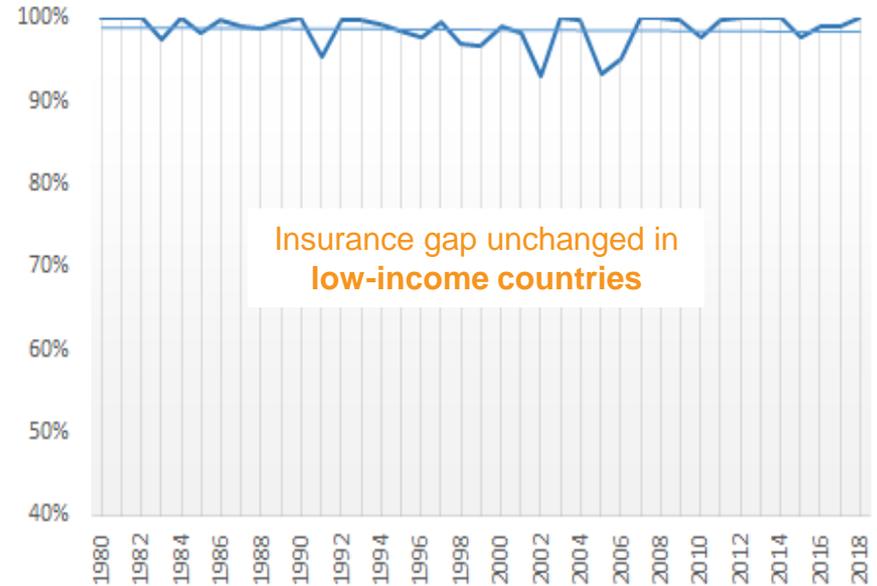
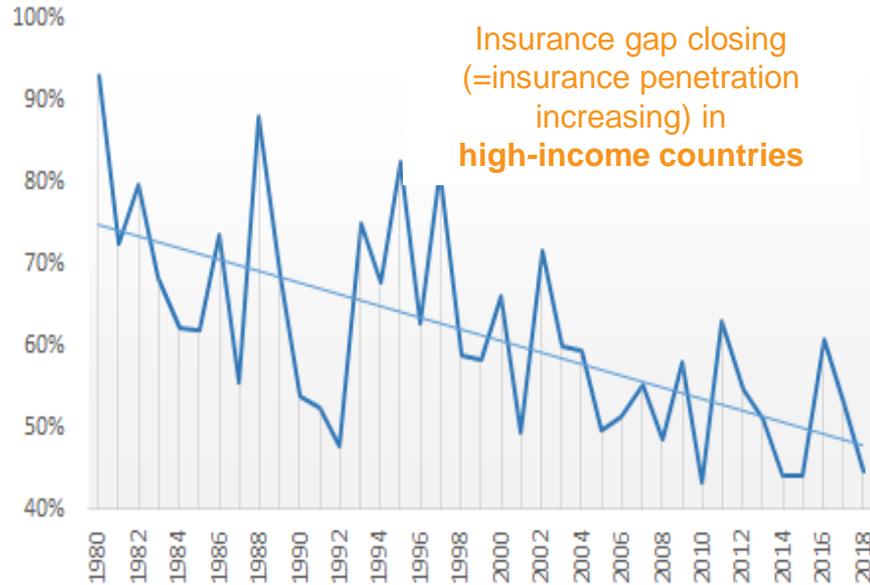
food supply



insurance opportunities/risks

Climate change: risk and business development drivers (1)

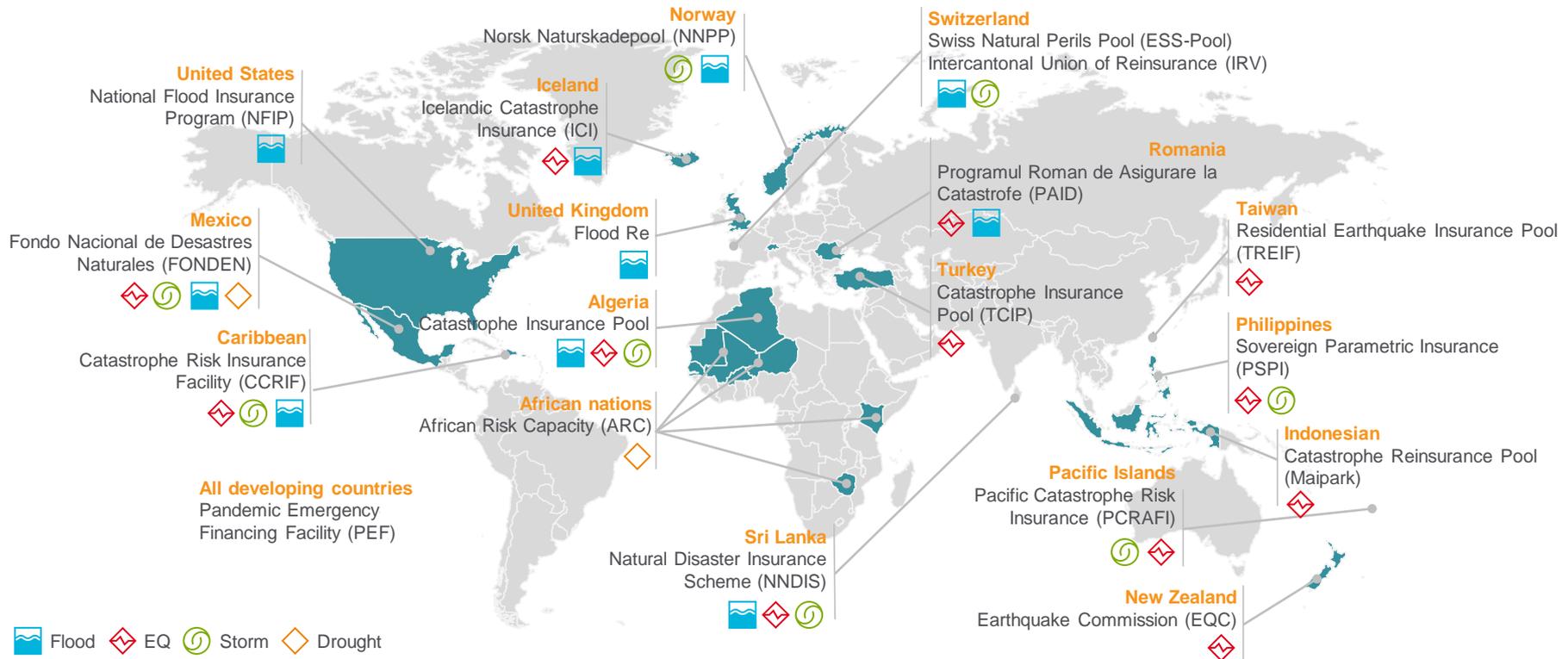
Nat Cat insurance gap



Since 1980 the insurance gap (uninsured losses as a share of overall losses) has **significantly decreased in high-income countries**

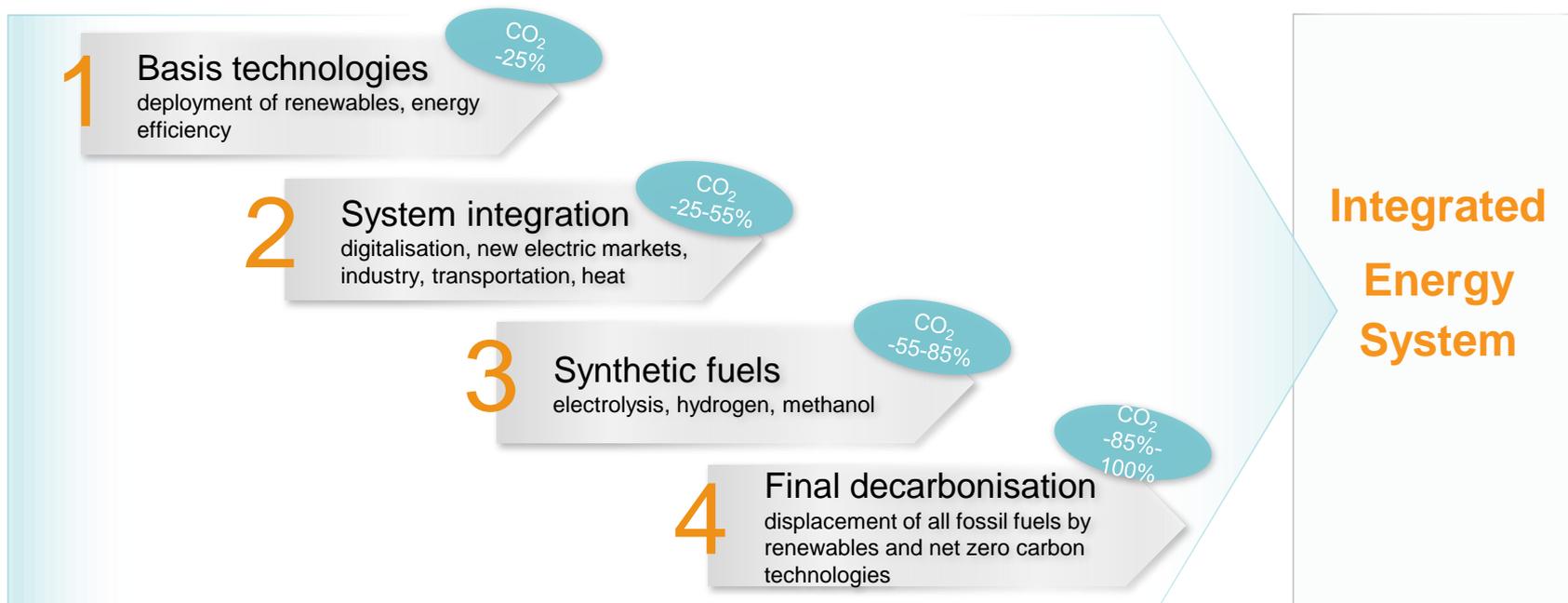
Climate change: risk and business development drivers (2)

sovereign and public-private Nat Cat risk transfer schemes



Climate change: technology drivers

achieving a complete decarbonisation by 2050: 4 phases



Munich Re's participation in science and technology networks: know-how generation and development of new business opportunities

Technology drivers: Munich Re business opportunities

innovative solutions by “Green Tech Solutions” – enabling new technologies

Established Renewables



Solar Energy

Wind Energy

Hydro

Inverter

Smart Energy & Disruptive Technologies



Electrical Energy Storage

E-Mobility

Energy Efficiency

Bio Energy/
Waste to Energy

Fuel Cells

LED Asset/
Installation Performance

Munich Re focuses on investments in renewable energies and low carbon infrastructure

- Fundamental reorientation of energy supply investments and rapid escalation in low-carbon investments necessary to achieve 2° scenario
- Investments needs far surpass public funding possibilities
- Munich Re invests in renewable energy projects around the world such as solar power plants and wind farms
- Munich Re invested capital in renewables: **€1.6bn** (31.12.2018)
- Target: **€2.8bn**
- Impact:
 - Generation of 2.3m megawatt hours of green electricity in 2018
 - Supplying power to around 590,000 households
 - **Avoided CO₂ emissions 800,000 t**

Avoided CO₂ emissions since 2011: 3,000,000 t



Example:

- Don Rodrigo solar park, Spain
- Acquired: 12/2018
- 500,000 photovoltaic modules with a total output of around 175 megawatts
- One of the largest solar parks independent of government subsidies in Europe
- 300 gigawatt hours per year; produces electricity for ~93,000 households

Munich Re's activities relating to digitalisation and cyber security focus on the following fields of activity

BUSINESS OPPORTUNITIES

- Digital cooperation models (e.g. Digital Partners, SaveUp)
- IoT applications and services (via HSB/relayr)
- Cyber (re)insurance: GWP 2018 US\$ 473m
- Cyber embedded service solutions and growing cooperation network, e.g. DXC Technology
- Insurance of AI technology
- Data-driven solutions

CYBER SECURITY STRATEGY

Defined mission:

- to protect Munich Re Group and stakeholder trust

Main objectives:

- Provide guidance to the organization
- Ensure consistency between degree of security with risk appetite
- Streamline activities by leveraging expertise and knowhow, existing infrastructures and services

EMPLOYEES & KNOW HOW

- Digital technology is transforming the workplace
- Goal: supporting the digital readiness of employees and establishing a new learning culture with focus on the digital priorities of Munich Re
- Provision of target-group-specific basic and further training for our developers, users and managers e.g. digital school, data analytics curriculum, cyber expert pool
- Cyber security experts in business units

Responsible handling of artificial intelligence

Social impact of AI – promote exchange, protect against risks

Security Risk Management Process



1st LoD³ (Risk taker, takes direct result responsibility) = Business and service units

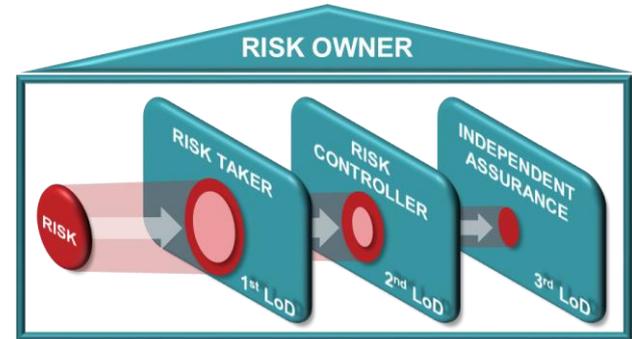
Reports exposures to independent risk management function

2nd LoD (Independent risk mgmt function, no result responsibility) = IRM

Challenges and provides input for risk strategy and risk decisions

3rd LoD (Internal audit must not have result responsibility) = Audit

Verifies that effective controls are in place and functioning properly

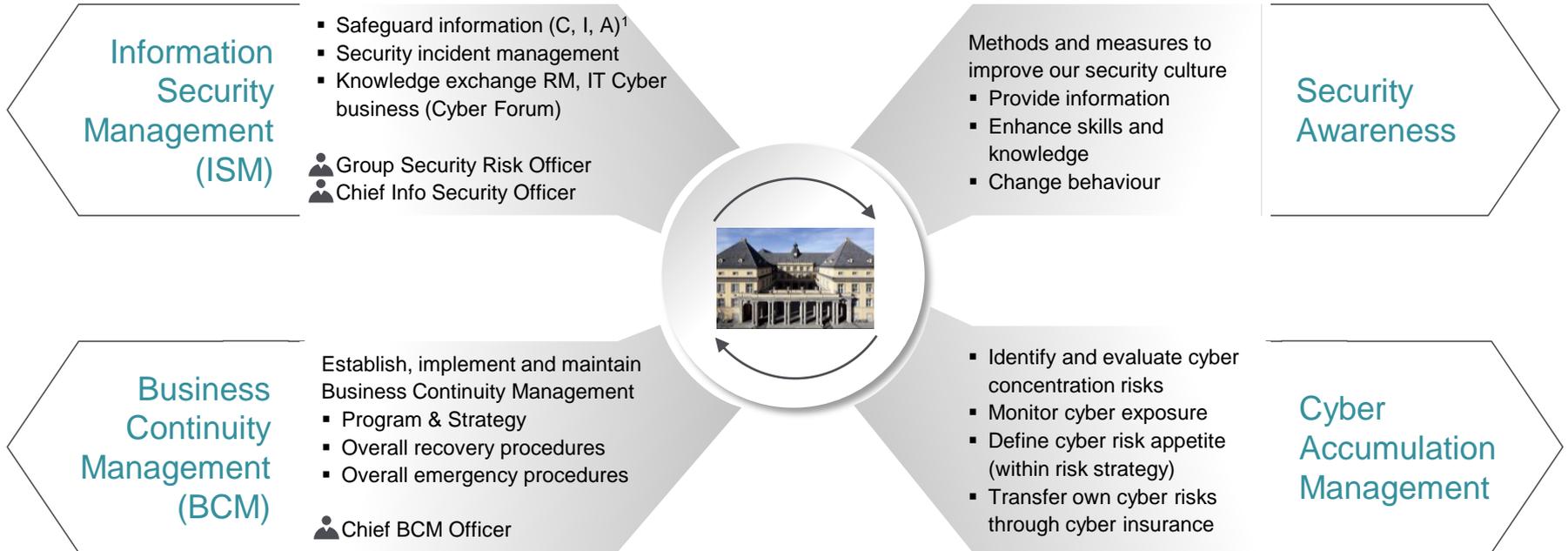


Security management is done in one integrated process with shared responsibilities on different levels of defense

1 A comprehensive assessment was conducted in 2018/19 by an external security consulting company, followed by regular progress assessments and reports to the management board. 2 Criticality managed by Security Incident Response Team (SIRT), Emergency Management Team (EMT) and/or Crisis Management Team (CMT), depending on the incident. 3 LoD = Line of Defense.

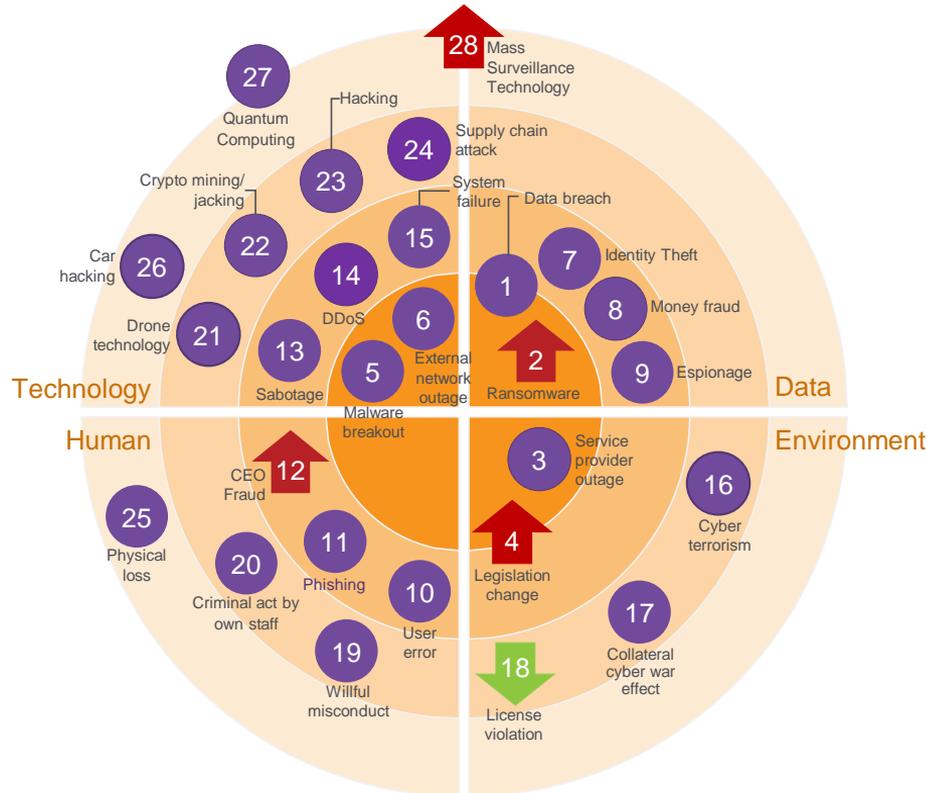
Security Risk Management

Tasks & Responsibilities of Integrated Risk Management



Protect Munich Re's information, operations, reputation and it's written business

Munich Re Cyber Security Threat Radar (Status: 10/2019)



Potential impact

- Potential for low cost single losses
- Potential of normal single losses
- Potential of expensive single losses
- Potential of accumulation losses

Trend

- ↑ Increase of frequency of publicly known incidents and/or average loss
- Constant frequency of publicly known incidents and/or average loss
- ↓ Decrease of frequency of publicly known incidents and/or average loss of

Munich Re's sustainability performance again amongst the top 10% insurers worldwide

Sustainable Responsible Investment Ratings



MSCI

Corporate Responsibility Report



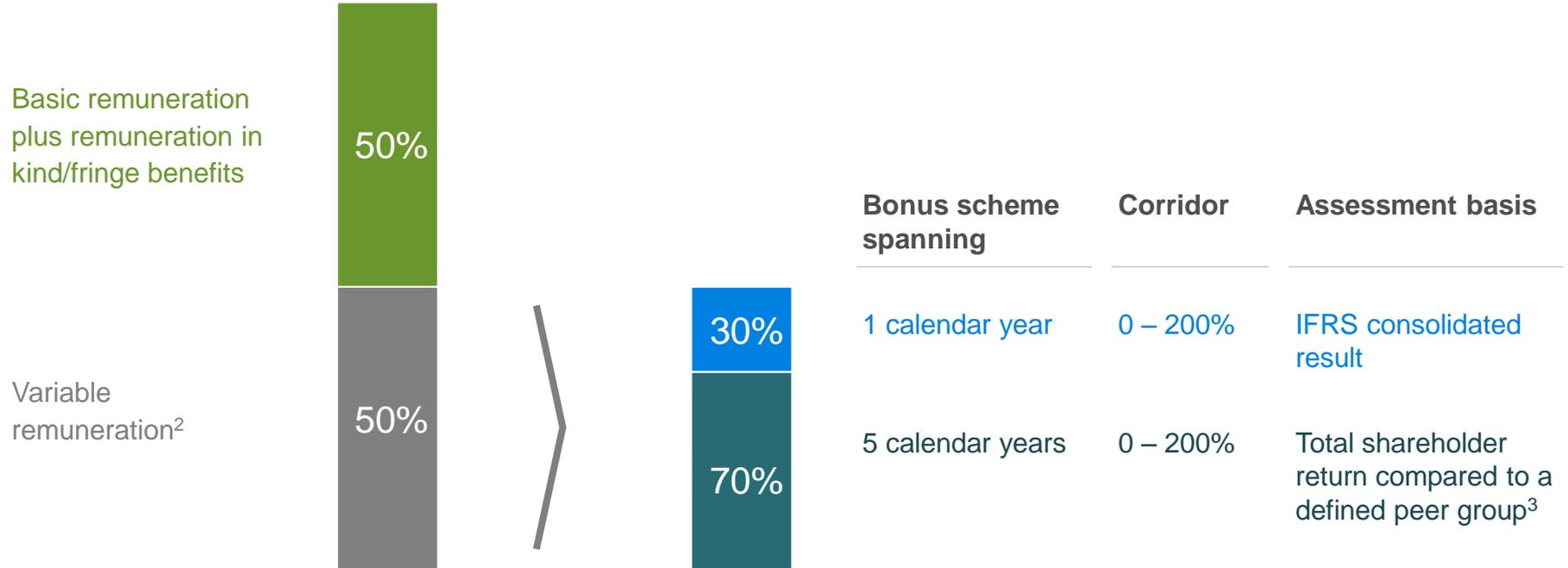
Combined non-financial statement



Backup



Governance – Remuneration system¹ for the Board of Management meets shareholder requirements



¹ Effective as at 2018. ² For 100% achievement of objectives/performance evaluation. **Evaluation of overall performance: Adjustment of achievement figures by the Supervisory Board of up to 20 percentage points (loading/reduction).** ³ Peer group: Allianz, Axa, Generali, Hannover Re, SCOR, Swiss Re, Zurich.

Criteria for the evaluation of overall performance (Examples for bonus / malus aspects)

Individual management performance

- Result of division/line of business, contribution to overall performance
- Individual performance (qualitative and/or quantitative)
- ESG criteria (environmental, social and governance)
- Employee satisfaction
- Any malus factors taken into account
- Special market circumstances or unexpected developments taken into account
- Implementation of strategy, improvements in organisation and processes, innovation
- Conduct (leadership, example set, compliance with guidelines, working relationship with colleagues and Supervisory Board)

Collective management performance

- Result of field of business (reinsurance and/or primary insurance)
- ESG criteria (environmental, social and governance aspects)
- Employee satisfaction
- Any malus factors taken into account
- Reaction to special market circumstances and unforeseeable developments

Situation, success and future prospects of Company

- Financial situation of Company
- Short-term and long-term profit outlook
- Market environment (interest rates, situation in sector, etc.)

The Sustainability Department is a central function at Munich Re – Structure overview



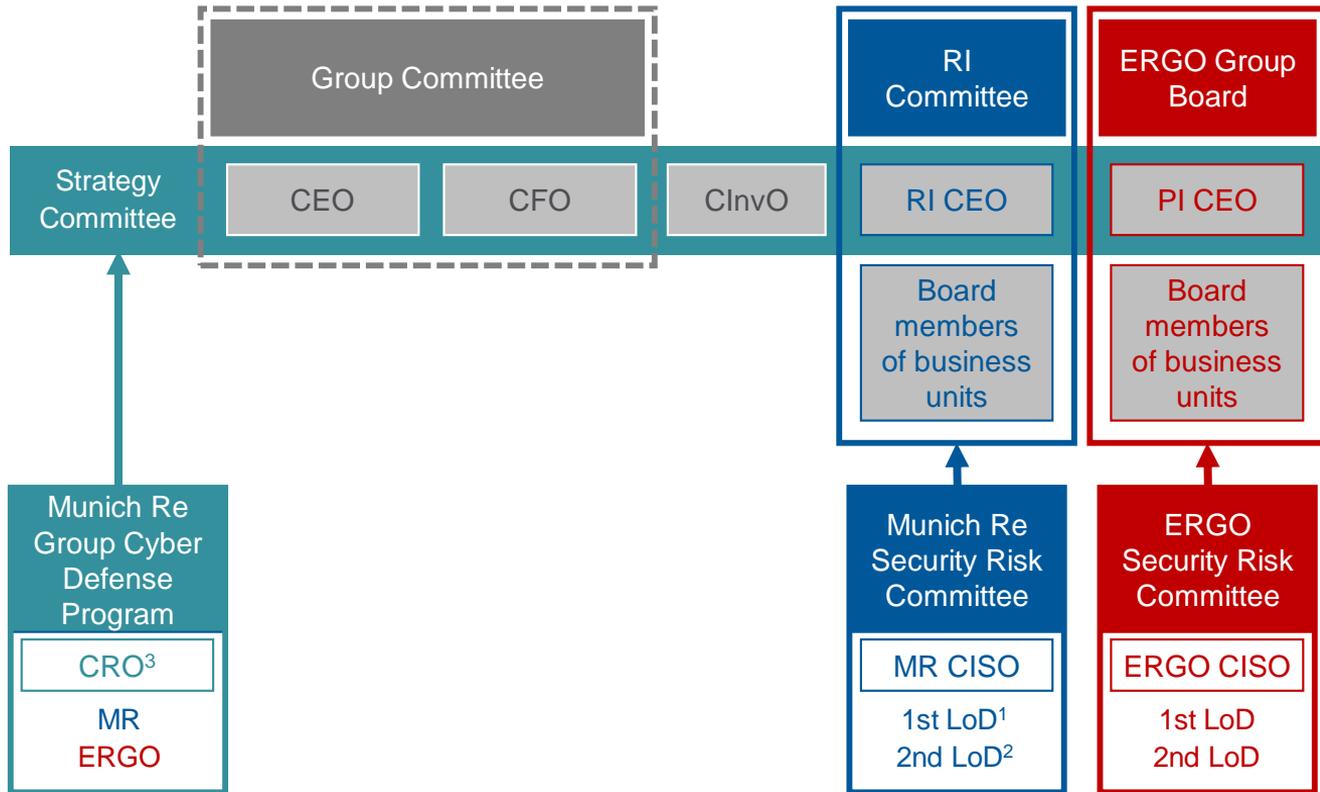
Business units implement strategy at local level with sustainability departments/coordinators, environmental managers, etc.

Sustainability is a central function located in ESP which directly reports to the CEO

Sustainability triggers, monitors, controls, enables and manages Group-wide sustainability-related tasks

Group Corporate Responsibility Committee (GCRC) as panel to monitor Shared Value Strategy and as Group Task Force for sensitive business issues

Security Governance (Security Risk Committees)



1 1st Line of Defense (CIO, CITSO, Facility Management, Business Units). 2 2nd Line of Defense (CISO, Chief Risk Officer, Data Protection Officer).
 3 Currently acting as Group Security Risk Officer.

Business enabling examples

Energy Storage System (ESS) Performance Warranty Cover

Description

Long-term performance cover for

- Battery Cells & Packs
- Stationary Energy Storage Systems
- E-Mobility Applications

Risk Transfer Solution

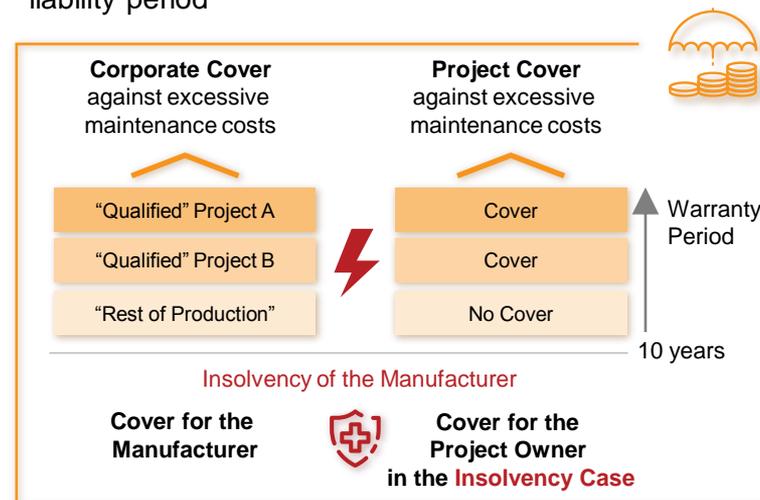
- Indemnification of excessive warranty claims
- One time premium based on insured year's revenue
- Non-cancellable for the insurer

Achievements

- Increased predictability for financial reserving
- Boost of growth-relevant cash reserves for R&D/marketing
- Balance sheet protection

Value proposition

- Enterprise risk management (ERM) cover for revenues of global annual production
- Long-term security for manufacturer during multi-year liability period



Business enabling examples

Photovoltaic (PV) Sales and Buyers Cover

Description

Long-term performance cover for

- Investors in and manufacturer of photovoltaic modules
- Protecting the performance of solar panels up to 30 years

Risk Transfer Solution

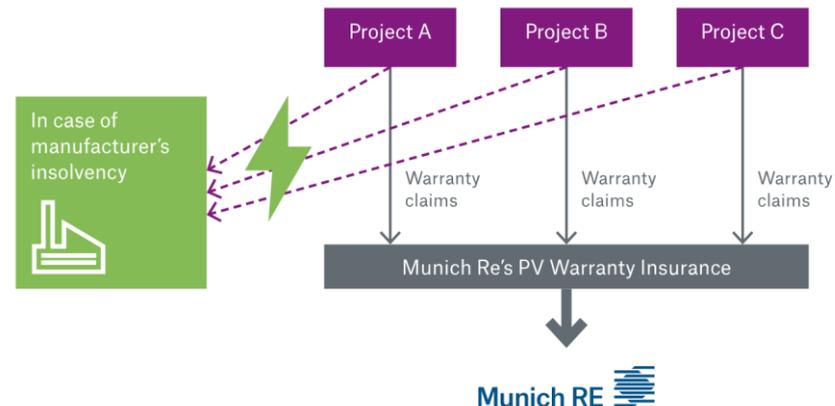
- Chosen projects covered
- In case of insolvency, the cover is transferred
- Realisation through covering technology AND credit risk
- Enabled to offer competitive rates

Achievements

- Creation of significant global insurance market
- Stable renewal business
- Munich Re established as Warranty Partner

Value proposition

- Planning stability due to dedicated capacity for Buyers and Project Investors
- Reliable Insurance partner and qualified due diligence



Public Private Partnerships: NatCat Risk Management Solutions Munich RE

for Governments, supranational Organizations & NGOs

Damages



Losses



Public Assets

If uninsured:
Property,
Content &
Infrastructure

(Reconstruction
& Replacement)

Recovery

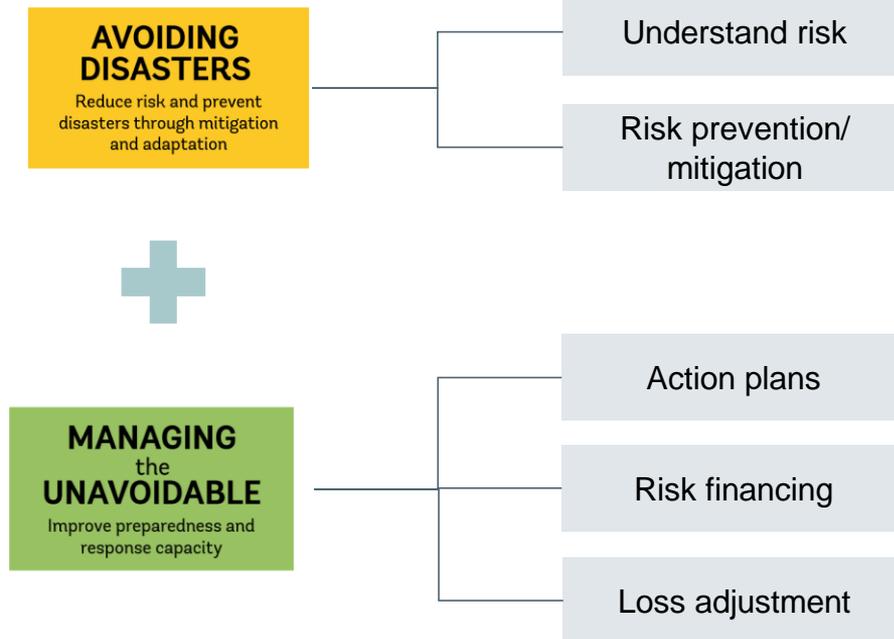
Private Assets Personal, Commercial and Industrial

If state backed:
Property, Contents
& Infrastructure

(Reconstruction &
Replacement)

Relief Payments
Social Transfers
Economic support
Reduced Income

Comprehensive Risk Management Framework



Risk Transfer within the Sovereign Risk Management Framework: Different Possibilities

Sovereign risk protection



government

Governments
(often the Ministry of Finance)

Policyholder

Funding /
Government role

Part of the federal budget:
Government manages allocation of
resources in case of NatCats.

Insured interest

Public assets and/or ex-ante financing of
emergency response

Examples

- FONDEN (public assets)
- CCRIF (emergency response)
- PSPI (Philippines)

	Damage	Losses
Public Assets	X	X
Private Assets		X

Protection for households/private sector



private sector

Private households or companies

Governments creates legal and
regulatory framework for high
insurance penetration.

Private property

- TCIP (Turkey)
- NFIP (United States)
- Flood Re (United Kingdom)

	Damage	Losses
Public Assets		
Private Assets	X	

Social protection



low income

Government with low-income
households as beneficiaries

Government pays the premium
while low-income households are
the beneficiaries

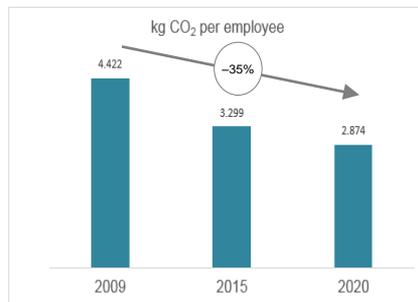
Contingent public liability for low
income households

- ARC
- NNDIS (Sri Lanka)

	Damage	Losses
Public Assets		
Private Assets	X	X

Carbon neutrality based on environmental management and CO₂ emission reduction

Our steps to carbon neutrality



Data gathering and measuring CO₂ emissions
→ since 2015 externally verified by a third party

Reduction of CO₂ emissions by saving energy, water, paper, waste and business travel and improving carbon impact of consumed goods and services

Substitute conventional electricity by green electricity

Compensate remaining CO₂ emissions through purchasing carbon credits

A Group-wide environmental management system is in place and approx. 80% of employees are covered

Target Munich Re Group 2020: –35% CO₂ emissions per employee since 2009
→ 2018 > –44% CO₂ reduction

Target Munich Re Group 2020: 100% electricity is from renewable sources
→ 2018 > 86% electricity used from renewable sources

Since 2015: Munich Re Group is carbon neutral

We implement various measures to reduce our carbon footprint

Premises

- Modernisation of premises, e.g. cooling technology systems at Munich site (savings of ~160 tonnes of carbon per year)
- LED-lights e.g. at Hamburg site more than 12,000 lights replaced (~1,200,000 kWh electricity savings per year)
- MR America: shed roofs producing solar energy

Mobility

- Reduce business travel and use new communication technology instead
- Vehicle fleet with low CO₂ emissions
- Charging stations for electric cars
- Subsidizing commuting by public transport (job ticket)

IT/Procurement

- Environmentally friendly products for office supplies
- Use of efficient IT equipment

Key Achievements in 2018

- Reduction of Group-wide carbon footprint by 44% per employee (base year 2009)
- 86% Green electricity procured Group-wide
- 103,000 t CO₂ emissions compensated for in 2018

It's key to inform staff about environmentally friendly behavior and motivate them to act

Our commitment to protection against climate risk

- Munich Re supports the **InsuResilience Global Partnership** initiative with data, expertise and risk capital. Founded in 2015 by the G7 countries, this initiative initially aimed to enable an additional 400 million people in developing and emerging countries to access insurance products covering weather and climate risks by 2020. During the UN Climate Week 2019 the German Ministry for Economic Cooperation announced an extension of this initiative until 2025 with an increased ambition of 500 million people. The initiative is primarily financed by industrialised countries. However, at the same time, as part of the InsuResilience Global Partnership, it relies on the active involvement of the G20 and V20 countries, as well as close cooperation with civil society, insurers and the scientific community. The Insurance Development Forum (IDF) - in which Munich Re is represented in the Steering Committee by our reinsurance CEO Torsten Jeworrek – is the relevant public private partnership platform developing financial solutions to support the achievement of the InsuResilience targets.
- The **Munich Climate Insurance Initiative (MCII)** was founded back in 2005, following an initiative by Munich Re and representatives from the World Bank, NGOs and academia. Since then, MCII has participated in the global climate negotiations (COPs), providing suggestions on climate risk management and insurance solutions for low income countries. MCII has also provided technical support in the discussions on dealing with losses from climate change under the UNFCCC Loss and Damage programme and the Warsaw International Mechanism.
- Together with our partner, **Climate-KIC**, the largest public-private climate initiative in the EU, promotion of climate-friendly technologies at a very early stage. The accelerator programme is aimed at cleantech start-ups whose technologies and business models offer responses to climate change. The promotion takes the form of financing, but also involves consulting from experts, who support the companies as mentors.

Diversity at Munich Re

- Our group-wide public Diversity Policy sets down the most important principles in regards to Diversity and forms the basis for overarching and comprehensive diversity management.
*“For Munich Re, diversity is a business need which promotes the acceptance and value of differences between our employees. This includes not only classic aspects such as **gender, religion, age, disabilities, nationality or cultural differences, and sexual orientation**, but also inherent characteristics such as **experience, education, personality or views**. Together, we benefit from those differences in achieving Munich Re’s strategic goals and objectives.”*
- Measures to increase the proportion of women in management positions:
 - (Cross-)mentoring programmes for women
 - Training courses for female management staff, advisory services
 - Formation of women’s networks (Munich Re “EFEU”; Munich Re of America “Employee Resource Groups”; MEAG “WIN@MEAG”)
Identification of high-potential female employees through the performance management process, talent discussion with gender sensitisation
 - Strong commitment to the promotion of women through a special internal company agreement (Munich Re Munich)

2018: Women in management positions (with disciplinary responsibilities for staff) 35.7 % worldwide (2017: 33.5%); Women 53.9 % of our Group’s workforce (2017: 54.5 %);

Employee Development & Digitalisation

We developed a platform that analyses Munich Re's needs in terms of new employee profiles and aims at upskilling the current workforce in all fields relevant to the digital transformation. Initiatives:

- **Digital School¹**: introduced in September 2018, it provides comprehensive overview over all learning opportunities and trainings in the field of digitalisation to all employees globally. In the first half of 2019 more than 2000 employees of 32 different sites accessed the Digital School.
 - Goal: cultural change towards digital learning.
- **Data Analytics Curriculum**: employees can acquire knowledge in the area of data analytics on different levels (Basic, Advanced, Black Belt, Experts). Facts since launch in Q2 2018:
 - eLearning: >4.000 learners (8/2019)
 - Classroom trainings: >1400 participants
 - University certificates for Black Belt: 140 until Q2 2019
- **Cyber Expert Pool**: launched in 2016, established a special training programme for cyber experts. The programme is aimed at qualifying candidates with suitable professional experience in cyber security to work in cyber underwriting. 13 underwriters were trained as cyber experts since 2016.

Group Trainee Programme EXPLORE has been awarded as a “Fair Trainee Programme 2019”! The certification was given by the Trendence Institute, in cooperation with the Institute for Human Resources Management at LMU Munich.

Corporate Responsibility

Renate Bleich

Head of Sustainability

Climate & Public Sector Business Development

Ernst Rauch

Chief Climate and Geo Scientist

Integrated Risk Management

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